

CLAIMS:

1. An ultrasound probe (10), comprising:
 - a housing (12) including at least one seam (30, 36, 40) extending from an exterior of said housing (12) to an interior of said housing (12);
 - a sensor assembly (16) arranged in said housing (12) and including electrically conductive parts (22), said sensor assembly (16) being arranged to transmit and receive waves; and
 - an acoustic matching layer (34, 44) arranged in said housing (12) between said electrically conductive parts (22) of said sensor assembly (16) and each of said at least one seam (30, 36, 40), said acoustic matching layer (34, 44) being arranged to acoustically influence waves transmitted and received by said sensor assembly (16) in a desired manner.
2. The probe of claim 1, wherein said matching layer (34, 44) is arranged entirely around said electrically conductive parts (22) of said sensor assembly (16).
3. The probe of claim 1, wherein said housing (12) comprises first and second housing parts (26, 28) with a seam (30) being formed therebetween, said matching layer (34, 44) extending from a location alongside said first housing part (26) to a location alongside said second housing part (28) and thereby extending across said seam (30) between said first and second housing parts (26, 28).
4. The probe of claim 1, further comprising an acoustic window (18) arranged in an aperture (20) of said housing (12) such that a seam (36) is formed between said housing (12) and said acoustic window (18), said matching layer (34, 44) extending from a location adjacent said acoustic window (18) to a location alongside said housing (12) outward from said aperture (20) and thereby extending across said seam (36) between said housing (12) and said acoustic window (18).
5. The probe of claim 1, further comprising epoxy (32) arranged between said matching layer (34, 44) and said housing (12).
6. The probe of claim 1, further comprising:
 - an acoustic window (18) arranged in an aperture (20) at a front portion of said housing (12), said electrically conductive parts (22) being arranged at least partially opposite said acoustic window (18); and

dielectric sensor support parts (24) arranged at a rear portion of said housing (12) to support said electrically conductive parts (22), said matching layer (34) having a closed front end and an open rear end adjacent said sensor support parts (24) and defining an elongate cavity in which said electrically conductive parts (22) are enclosed.

7. The probe of claim 1, wherein said matching layer (34, 44) is arranged to wrap over said electrically conductive parts (22) in their entirety.

8. The probe of claim 1, further comprising a connection member (42) connected to a rear end of said housing (12) and defining a seam (40) therebetween, said matching layer (34) being arranged to extend across said seam (40) between said connection member (42) and said housing (12).

9. The probe of claim 1, wherein said matching layer (34, 44) comprises parylene-coated polyurethane.

10. The probe of claim 1, wherein said matching layer (34, 44) comprises one of a polyolefin or a thermoplastic elastomer.

11. The probe of claim 1, wherein said housing (12) is in the form of a housing for a transesophageal echocardiographic ultrasound probe.

12. The probe of claim 1, wherein said matching layer (34, 44) is coated with an electrically insulative material.

13. An ultrasound probe (10), comprising:

a housing (12);

a sensor assembly (16) arranged in said housing (12) and including electrically conductive parts (22), said sensor assembly (16) being arranged to transmit and receive waves; and

an acoustic matching layer (34, 44) wrapped around said electrically conductive parts (22) to electrically isolate said electrically conductive parts (22) from said housing (12), said acoustic matching layer (34, 44) being arranged to acoustically influence waves transmitted and received by said sensor assembly (16) in a desired manner.

14. The probe of claim 13, wherein said matching layer (34, 44) defines an elongate cavity having a closed front end adjacent a tip of said housing (12) and an open rear end, said electrically conductive parts (22) being arranged in said cavity.

15. The probe of claim 14, further comprising dielectric sensor support parts (24) arranged at a rear portion of said housing (12) to support said electrically conductive

parts (22), said rear end of said matching layer (44) being situated adjacent said sensor support parts (24).

16. The probe of claim 13, further comprising a connection member (42) connected to a rear end of said housing (12) and defining a seam (40) therebetween, said matching layer (34) being arranged to extend across said seam (40) between said connection member (42) and said housing (12).

17. The probe of claim 13, wherein said matching layer (34, 44) comprises parylene-coated polyurethane.

18. A method for manufacturing an ultrasound probe (10), comprising:
wrapping an acoustic matching layer (34, 44) over a sensor assembly (16), the acoustic matching layer (34, 44) being constructed to acoustically influence waves transmitted and received by said sensor assembly (16) in a desired manner;
inserting the wrapped sensor assembly (16) into a first housing part (26);
attaching an acoustic window into an aperture in the first housing part (26) or in a second housing part (28) which mates with the first housing part (26);
attaching the acoustic window (18) to the wrapped sensor assembly (16);
joining the first and second housing parts together (26,28); and
filling an epoxy (32) between the first and second housing parts (26, 28) and the wrapped sensor assembly (16).

19. The method of claim 18, further comprising:
attaching a connection member (42) to a rear end of the first and second housing parts (26, 28) to define a seam (40) therebetween; and
extending the matching layer (34) past the rear end of the first and second housing parts (26, 28) over the seam (40) defined between the first and second housing parts (26, 28) and the connection member (40).